

**O & M INSPECTION REPORT
FOR NAVIGATION AND SHORE PROTECTION PROJECTS**

1. Project Name: Manele SBH
2. Date of Inspection: August 1, 2002

3. Inspection Personnel:

Name	Agency/Office	Telephone No.
a. Dan Meyers	COE	438-8875
b. Lt. McMahon	COE	
c. Eric Li	COE	438-8862

4. Discussion:

Site Conditions: Clear, sunny, and breezy. Water on HS was murky due to the silt that had washed out of the sediment basin. Water on the ocean side was clear.

Conducted site inspection and noted the following:



A. Overview at start of project from trunk to root. Ocean side is to the left, and harbor side is to the right.



B. Overview at end of project from trunk to head. Ocean side is to the right, and harbor side is to the left.



C. Sta. 1+09, HS, dislodged armor stone 3' from toe. Void is half way up side slope.



D. Sta. 1+40, OS, side slope failure. 8 LF hinge to toe under layer exposed.



E. Sta. 2+20, OS, 2 flipped armor stones on side slope.



F. Sta. 2+44, OS, side slope steepening. Void under side slope. Under layer not exposed.



G. Sta. 2+80, OS, Dislodged armor stones at water line.



H. Sta. 3+01, OS, 1 armor stone resting at hinge.



I. Sta. 3+40, 2 large voids at center line of crest.



J. Sta. 3+74, OS, 3 dislodged armor stones at toe. 1 flipped armor stone at hinge.



K. Sta. 4+01, OS, 1 fracture at hinge.



L. Sta. 4+22, OS, 1 armor stone dislodged resting on side slope.



M. Sta. 4+51, OS, large void with exposed under layer. Dislocated armor stone is resting on side slope, which is also steepening.



N. Sta. 4+86, OS, side slope failure with under layer exposed. 2 dislodged armor stones in the water at the toe.



O. Sta. 5+14 to Sta. 5+42, OS, side slope steepening. Dislodged armor stone at toe with poor contact.



P. Sta. 5+67, HS, structure flattening and steepening at water line.



Q. Sta. 5+87, picture taken from 22 degrees HS to 22degrees OS at the head of the structure. There is a possibility of a missing layer of armor stones at water line.



R. Sta. 5+87, picture taken from top of monument at 20 degrees HS to center line of head at 0 degrees. There is a possibility of a missing layer of armor stones at water line.



S. Sta. 5+87, picture taken from top of monument at center line of head at 0 degrees to 22 degrees OS. There is a possibility of a missing layer of armor stones at water line.



T. Sta 4+98, HS, 1 dislodged armor stone at toe.

5. Conclusion:

After review of the past O&M inspections it appears the project was constructed with "extreme" randomness with respect to the armor stone placement and the noted items, while not the result of wave energy, are being exacerbated by wave action. The armor stones are not keyed and fitted resulting in loose and rocking stones. The lack of interlocking stones has created large voids, bridging, perched rocks, and exposed under layers and cores to direct wave action. The past photos reveal a steady decline in the contact of the armor stones. There has been no change in deficiencies.

Signed: _____
James Pennaz, P.E., CEPOH-EC-T

Signed: _____
Eric Li, CEPOH-EC-T

Enclosure(s)

1. Site Plan (8½"x11")
2. Fact Sheet Dated June 2002 (8½"x11")
2. Stationing Map for Breakwater (2 - Large Format Xerox Copies)